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ABSTRACT

The present study investigated how type of interaction between groups affects intergroup hostility and how this intergroup hostility may be reduced. In the first phase of the study groups were led to believe that they were either competing, cooperating, or having no interaction with a second group. The results indicated that competition led to the greatest intergroup hositility while cooperation between groups led to the greatest intergroup attraction. In the second phase of the study, the two groups were combined to work on a series of superordinate goals. They received feedback that their combined effort had either succeeded or failed in obtaining the superordinate goal. Intergroup attraction scores taken after this stage of the study showed that in groups that had previously competed, failure on the superordinate tasks increased intergroup hostility while success of the combined tasks reduced hostility. However, for groups that had previously cooperated, failure on the superordinate tasks reduced intergroup hostility to a greater degree than did success on the combined effort. The results were interpreted as showing that both previous interaction and success of combined effort are important variables in determining when working on superordinate goals will reduce intergroup hostility. (Author)

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The Effect of Types of Previous Interaction and Success of Combined Effort on Intergroup Hostility[1]

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The Effect of Types of Previous Interaction and Success of Combined Effort on Intergroup Hostility

The pervasiveness of intergroup hostility and aggression has long been a concern of psychologists, sociologists, and anthropologists alike. They have found that there are a number of ways in which intergroup aggression can be aroused. For instance Levine (1965) suggests that hostility between groups often arises from cultural sources. According to Levine's anthropological research adults provide their children with a stereotype image of societies which have a different cultural heritage or way of life. More often than not these dissimilar societies are portrayed as hostile, bad and unworthy of friendship. Thus, even though there is no contact with the dissimilar outgroups (that is, the other society), the image provided to the children is sufficient to arouse latent hostile and aggressive feelings toward the outgroup. Tajfel (1970) has provided further evidence of the ease with which intergroup hostility is generated. Young boys who were divided into two groups simply on the basis of their alledged tendency to overestimate or underestimate the number of dots in a stimulus figure, exhibited a strong preference to maximize the gains of ingroup members and minimize the gains of outgroup members.

Perhaps the most agreed upon cause of intergroup hostility is that of competition between groups. Robbie and Horowitz (1969) demonstrated that subjects who were randomly divided into two groups would readily display ingroup favoritism and outgroup hostility if they were competing for a prize. In a classic series of studies conducted at a boys summer camp, Sherif and his colleagues (Sherif, Harvey, White, Hood, and Sherif, 1961) provided dramatic evidence of the extent to which competition led to intergroup aggression. The subjects in these studies were eleven and twelve year old boys from middle class families. Ingroups were established by housing two groups of boys in separate cabins and encouraging

cooperation within the group. Following this period of group solidation the experimenters arranged several games and incidents which brought the groups into conflict and competition. The competition led to a surprisingly high amount of intergroup aggression. This intergroup aggression ranged from strong sociometric preferences for the ingroup and rejection of the outgroup to name-calling and even physical attack on members of the outgroup.

Although the causes and pervasiveness of intergroup aggression have been well documented, there have been relatively few investigations into the means by which it can be reduced. One direct attempt to study the process whereby intergroup hostility could be resolved was made by Sherif as an integral stage in the camp studies outlined above. Following the intergroup competition stage of their study, Sherif et al. (1961) employed several tactics in an effort to reduce the hostility between the groups. Included in these were the dissemination of favorable information about the outgroup, inducing social contact between the groups which involved activities that were pleasant in themselves, and introducing a common enemy in the hope that, while combating this third party, the groups would find each other more attractive. The results demonstrated that none of these methods were successful in reducing the intergroup conflict. Sherif et al. (1961) concluded that contact alone was not sufficient but rather the contact had to occur under conditions in which the groups were working toward a superordinate goal. A superordinate goal was defined as one which both groups desire, "that [is] compelling for the groups involved, but cannot be achieved by a single group through its own efforts and resources" (Sherif and Sherif, 1969, p. 265). The results of his studies lend support to the hypothesis that cooperation on several superordinate goals will reduce the hostility and social distance between two previously hostile groups. After cooperating on three superordinate goals and achieving the desired outcome on

each of these cooperative endeavors, a significant reduction in intergroup hostility was witnessed.

One problem with Sherif's explanation for the reduction in hostility lies with his focus on the actual intergroup contact in and of itself without considering the effect of the outcome of the contact. In all instances of intergroup cooperation on a superordinate goal, Sherif and his colleagues ensured that the groups were successful at achieving the desired goal. Consequently, it is impossible to determine whether the intergroup contact itself reduced hostility and increased attraction or whether the contact culminating in a successful endeavor was the crucial factor. The question remains, will contact resulting from cooperation on a superordinate goal lead to an increase in attraction even if the groups fail at achieving their goal?

There appears to be two possible effects of failure. One possibility is that failure to achieve the superordinate goal would lead to greater attraction between the two groups. In this case, the groups may want to console each other upon their misfortune. On the other hand, failure could result in one group being used as a scapegoat for the failure so that the ingroup members would not have to blame their own group for it. Hence, an increase in hostility is also a plausible outcome of a failure to achieve the superordinate goal.

Whether attraction is increased or decreased by failure may depend on the nature of the previous interaction between the two groups. If the two groups are initially hostile toward each other, then failure may lead to an increase in the hostility. Given that the groups had already established a pattern of hostile interaction, the frustration aroused by the failure would serve to strengthen the dominant response of aggression toward the outgroup. Shifting the blame for the failure to the outgroup would be a simple process since the group would have become

accustomed to viewing the outgroup as irresponsible, lazy, hostile and stupid. Consequently they would have a "ready made" scapegoat.

The situation would be different, however, for two groups which were friendly before their cooperative effort on the superordinate goal. These two groups would have a well-established pattern of cooperation, friendliness, mutual respect and mutual attraction. Therefore, when they are confronted with the frustration of failure, the members of one group would not blame the other group but would turn to them for comfort. This, in turn, would lead to greater attraction toward the members of the outgroup.

In order to determine the effects on attraction of success and failure at a superordinate goal, two groups were brought together to work on a series of tasks. For the first series of tasks, the two groups either cooperated on the task in order to win a mutual prize, competed against each other for the prize or were completely independent without any interaction between the groups. Following the initial interactions, the two groups were instructed to cooperate as one group, on another series of tasks for which prizes were available. The attainment of these prizes constituted the superordinate goals. After each of these tasks, the combined group was informed that it was either successful or unsuccessful at meeting the task requirements for the prize.

It was predicted that success at achieving the goal would lead to an increase in attraction for all groups. However, failure should differentially effect the groups depending on their initial interaction. If the initial interaction was cooperative or if there was no interaction between the two groups, failure should also increase attraction between the groups. On the contrary, for initially competitive groups, failure at achieving the superordinate goal should lead to an increase in the intergroup hostility.

Method

Subjects

Four hundred and ninety-four male and female undergraduate students at the University of North Carolina participated in the experiment in partial fulfillment of introductory psychology course requirements. Each experimental session involved groups of eight to twelve subjects. Data from two groups were omitted from the analysis because some or all of the group members expressed suspicion concerning the true nature of the experiment.

One male and one female graduate student served as experimenters for the sessions. Each experimenter conducted at least four sessions in each cell of the experimental design.

Procedure

When a group of subjects arrived at the experimental session, they were ushered into the experimental room and seated around a large table. The experimenter explained that a number of industries were concerned with the efficiency, performance and decision-making processes of small groups working under pressure, and had thus provided funds to obtain more information about these areas. For this reason, subjects were told, they would participate in an industrial simulation which consisted of working on a series of business-like tasks under various kinds of pressure. The subjects were warned that in order to make the simulation as realistic as possible, each task must be completed within a certain time period and the product of the task would have to meet specified standards in order for their work to be rewarded. They were also told to expect to complete some industrial reports concerning the tasks periodically throughout the experiment.

The experimenter then stated that since the simulation was concerned with the performance of small groups, the large group would be divided into two small ones.

This was accomplished by having the subjects randomly draw numbered slips of colored paper from a box. Subjects were thereby assigned to either the Red or Blue group, depending on the color of tag they drew and were told to refer to an individual by the color and number that appeared on that person's tag. It was prearranged that there would be an equal number of people in each group.

Manipulation of Type of Group. At this point the type of interaction between the two groups was manipulated. In the Cooperative conditions, subjects were told that cooperation between industries and between groups within an industry was an important aspect of the work situation which contributes to the pressure felt by the workers. Therefore, in order to simulate this, the two groups would have to cooperate on the tasks. The experimenter explained that the product of each group would be combined and if this combined product met the standard, then both groups would earn the prize available for the task. However, if it did not meet the standard, neither group would recieve the reward. The interdependency of the two groups was emphasized.

The subjects in the Competitive condition were led to believe that the division into two groups was an effort to simulate the competitive nature of the work situation These groups were informed that they would be competing against each other for the reward available for each task. The experimenter stated that this would be accomplished by comparing the products of the two groups to each other as well as to a standard and that the group who came closest to meeting the standard would be awarded the prize for the task. It was stressed that only one group could win.

In the No Interaction condition, the experimenter explained that two groups had been formed simply because it was easier and faster to use two groups in one session. He stressed that the two groups would work independently and that the outcome of one group in no way affected or interferred with the other group. He pointed out that both groups could win the prize for the task, only one group could

win, or neither group could win.

Following this overview, the experimenter went on to explain the details of the tasks. For the first task, subjects were told they would be given the case history of Johnny Rocco, a young boy who required psychological counseling and that they would be given twenty minutes to discuss the case and to design a treatment program for him. Subjects in the Cooperative condition were informed that the two programs would be combined and analyzed by a computer. If this final program was as effective as a standard program, then they were told that each person in both groups would earn 50¢. The rules provided to the subjects in the Competitive condition were that each program would be analyzed by the computer and that the members of the group who had the most effective program would each win 50¢. In the No Interaction condition, the subjects were told that if their group's program met the standard level of effectiveness, each member would receive 50¢.

The experimenter then explained that since the solutions to this and the remaining task in the first series would require some time to analyze, the results would not be made available until the end of the experiment. In actuality, there was no standard nor were the subjects ever informed of their outcome on the first series of tasks.

The groups were then led to separate rooms and given the material necessary to complete the task. After twenty minutes had elapsed, the solutions were collected and the groups returned to the large outer room. Instructions for the second task were then given. The task involved generating, within a ten minute time period, as many words as possible from the letters of the word "industriously." The method employed to determine who would earn the 50¢ prize was similar to the one described to the groups for the first task. The groups then returned to their individual rooms.

Following completion of the word task, the two groups were brought together and were given the first questionnaire. When all the subjects had completed the questionnaire, the procedure for the second phase of the simulation was outlined. The experimenter stated that cooperation in large groups was a necessary part of the industrial setting. Consequently, the groups were told, they would be combined and would work together as one group to produce one solution for each of the remaining tasks. It was emphasized that if the group solution met the standard, everyone would receive 50¢ for that task but if the solution was not adequate, no one would receive the money. Thus, the tasks in the second phase constituted the superordinate goals for the two groups.

The first task in this series was then explained to the subjects. They were given a brief description of a toothpaste product and asked to write a slogan for it. Ten minutes were allotted for this task. The subjects were encouraged to discuss the problem carefully during this time in order to arrive at the best slogan possible. The experimenter added that due to the ease with which the remaining solutions could be analyzed, the groups would know immediately whether they had succeeded on the task. He then stated that while the group worked on the slogan task, he would type the solutions of the first two tasks into the teletype which was present in the room.

Manipulation of Outcome. Upon completion of the slogan task, the experimenter typed the slogan solution into the teletype and appeared to receive a reply almost immediately. It was then that the experimenter manipulated the outcome variable according to a specified random schedule. The experimenter was unaware in which outcome condition the group would be until this point. In the Success condition, the experimenter announced that the group had been successful in meeting the task requirements. He then placed 50¢ for each group member into a box, stating that he

would let the group work on the second task and then distribute the money to the individual members. In the Failure condition, he simply said that the group solution had not met the standard.

The instructions for the second task were then handed to the subjects. They were given information about several trucks and truck drivers and asked to allocate the trucks to the drivers to ensure that everyone would be satisfied (adapted from Maier, 1955). Again, they were told to cooperate as one group and arrive at a group solution. The conditions for success which applied to the first task in this second series were employed for this one as well. After the group had worked on the problem for twenty minutes, the experimenter typed the solution into the teletype and again announced the outcome of the task. All groups were given the same feedback that they had received on the first task in this series. Thus, each group was informed that they had either succeeded at both tasks or failed at both.

Following completion of all of the tasks, the experimenter again requested that each member of the group complete a questionnaire. Subjects were then thoroughly debriefed.

Results

Two experimenters were utilized in the study. The results were first analyzed to test for an experimenter effect. None appeared on any of the variables, so the data were collapsed over experimenter. This resulted in a 3 (Type of Group) x 2 (Outcome) design. Since subjects were run in groups, the results are computed and analyzed according to the group averages.

First Questionnaire

Subjects completed the first questionnaire after working on the first two tasks.

Manipulation check. Subjects were asked "How cooperative did you feel toward members of the other group?" (1 = Very cooperative, 31 = Very Competitive). The

intent of this question was to insure that the cooperative-competitive manipulation had an effect. The means for each of the Cooperative, Competitive and No Interaction conditions (4.77,18.95 and 11.36, respectively) indicate that this manipulation was successful. Subjects in the Cooperative conditions felt significantly more cooperative than subjects in the No Interaction groups ($F = 171.87$, $df = 1,44$, $p < .001$) and subjects in the No Interaction groups felt significantly more cooperative than subjects in the Competitive conditions ($F = 242.25$, $df = 1,44$, $p < .001$). There were no other significant effects for this variable.

Attraction Measures. A number of questions were asked to measure subjects' attraction toward members of their own group and toward members of the outgroup. It was expected that subjects in the Competitive conditions would be most rejecting of members of the outgroup while Cooperative condition subjects would be most attracted to outgroup members. The first attraction measure asked subjects to list three people in the room with whom they would most want to be friends. The second question asked subjects to list the three people with whom they would least like to be friends. Scores on these two questions were obtained by taking the average number of outgroup members named on these questions. The highest possible score would thus be 3 while 0 would be the lowest. The only significant results obtained for these two questions was the main effect for Type of Group. With regard to friends, the main effect ($F = 89.50$, $df = 2,44$, $p < .001$) resulted from the Cooperative groups ($\bar{X} = .81$) naming outgroup members as friends significantly more often ($F = 95.20$, $df = 1,44$, $p < .001$) than subjects in the No Interaction conditions ($\bar{X} = .46$). Subjects in the No Interaction conditions named outgroup persons as friends significantly more often ($F = 35.20$, $df = 1,44$, $p < .001$) than subjects in the Competitive conditions ($\bar{X} = .25$).

For individuals with whom they would least want to be friends, the reverse pattern was obtained (Cooperative $\bar{X} = 2.32$, Competitive $\bar{X} = 2.71$ and No Interaction

$\bar{X}$ = 2.47). Subjects in the Competitive condition named outgroup members significantly more often than subjects in the No Interaction ($F = 17.14$, $df = 1,44$, $p < .001$), while subjects in the No Interaction conditions named outgroup members more often than did subjects in the Cooperative groups ($F = 6.00$, $df = 1,44$, $p < .05$).

A second set of attraction assessments asked subjects to indicate how much they liked each member of their own group and each member of the outgroup (1 = Like very much, 31 = Dislike very much). An average attraction score for the ingroup and outgroup was computed. The ratings of the outgroup show a strong main effect for Type of Group ($F = 181.91$, $df = 2,44$, $p < .001$). Subjects in the Competitive group disliked the outgroup members significantly more than did subjects in the Cooperative ($F = 300.813$, $df = 1,44$, $p < .001$) or No Interaction groups ($F = 236.41$, $df = 1,44$, $p < .001$). There was no significant difference between the Cooperative and No Interaction groups.

Interestingly enough, there was a significant main effect for Type of Group on the ingroup ratings as well ($F = 3.64$, $df = 2,44$, $p < .05$). This effect was due to the fact that Competitive subjects liked members of their own group much more than did subjects in the Cooperative groups ($F = 7.23$, $df = 1,44$, $p < .05$) and slightly more than did subjects in the No Interaction groups ($F = 2.14$, $df = 1,44$, $p < .20$).

Two other questions were designed to assess ingroup attraction. Subjects were asked to indicate "how well did the members of your group work together on the two tasks?" and "how much did you enjoy working with members of your group on the two tasks?" There were no significant effects on the first question but there was a strong main effect for Type of Group on the second one ($F = 8.02$, $df = 2,44$, $p < .001$). This effect was due to the Cooperative and Competitive groups enjoying their groups significantly more than did subjects in the No Interaction conditions ($F = 15.51$, $df = 1,44$, $p < .001$).

To summarize the attraction scores, the predictions that competition would lead to greatest intergroup hostility and cooperation would lead to least hostility were borne out. Further, it seems that there was a tendency for competing groups to have the greatest ingroup cohesion.

Leaders. Subjects were asked to indicate which individuals they felt were leaders of their group during the first two tasks. Again, the only significant effect was the Type of Group main effect (First Task: $F = 74.17$, $df = 2,44$, $p < .001$; Second Task: $F = 42.80$, $df = 2,44$, $p < .001$). The data indicate that the Competitive groups had significantly fewer persons who served as leaders than in either the Cooperative (First Task: $F = 80.50$, $df = 1,44$, $p < .001$· Second Task: $F = 60.83$, $df = 1,44$, $p < .001$), or No Interaction groups (First Task: $F = 121.50$, $df = 1,44$, $p < .001$· Second Task: $F = 58.33$; $df = 1,44$, $p < .00$

Task Ratings. Subjects were asked to rate each task as to difficulty, enjoyableness, and satisfaction with performance. No significant main effects or interactions were found on any of these questions.

Second Questionnaire

After the two groups were combined, subjects worked on two tasks. Following the completion of these two tasks, subjects were informed of whether their efforts were successful or unsuccessful. They then completed a questionnaire very similar to the first one. Even though the two groups were combined, we will continue to refer to the ingroup as the group to which the subject originally belonged and the outgroup as that group which was either in a competitive, cooperative or no interaction condition with the subject's group.

Attraction Measures. Subjects were again asked to name the three persons with whom they would most like to be friends and the three with whom they would least like to associate. The scores were computed in the same manner as on the first questionnaire and the results are presented in Table 1. With regard to the

friends, the interaction is the result of the fact that the Outcome factor had a

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Insert Table 1 here
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significant differential effect on the nominations for the Competitive and Cooperative conditions. As can be seen from the means, the Competitive-Failure condition resulted in subjects naming outgroup members as friends significantly fewer times than subjects in the Competitive-Success condition ($F = 265.00$, $df = 1,44$, $p < .001$). On the other hand, failing to attain the superordinate goal had the opposite effect for previously cooperative groups. In this case, more outgroup members were nominated as friends in the Cooperative-Failure condition than in the Cooperative-Success condition ($F = 9.60$, $df = 1,44$, $p < .001$).

For those who were least desired as friends, the two main effects were again qualified by the significant interaction. In this case, the Outcome manipulation produced a significant effect in the Competitive conditions only ($F = 86.86$, $df = 1,44$, $p < .001$). The Competitive-Lose condition was the only devient condition. The mean number of outgroup members named by subjects in this condition was significantly greater than the number named by subjects in the other five conditions ($F = 186.60$, $df = 1,44$, $p < .001$). The means of the remaining five conditions did not differ significantly from one another, although there was a tendency ($F = 2.75$, $df = 1,44$, $p < .10$) for the Cooperative-Failure subjects to name fewer outgroup members as least desirable friends than the Cooperative-Success subjects.

The second set of attraction ratings asked subjects to rate how much they liked each member of the two groups. As can be seen from Table 2, there were two significant main effects qualified by an interaction on the ratings of outgroup members. This interaction was due solely to the increased hostility of the subjects in the Competitive-Failure condition relative to the subjects in the remaining conditions combined ($F = 580.92$, $df = 1,44$, $p < .001$). These latter five conditions did not differ significantly from each other.

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Insert Table 2 here
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The ratings of own group showed only a main effect for Type of Group. Subjects in the Competitive condition liked their ingroup members significantly more than did subjects in the Cooperative ($F=11.96, df=1,44, p<.001$) or No Interaction conditions ($F=5.42, df=1,44, p<.05$). This high cohesiveness among the Competitive condition subjects was also found on the first questionnaire ratings and it is interesting that it continued even after the groups were combined.

The analysis of the "work well together" and "enjoy group" questions resulted in two significant main effects and a significant interaction. Again, the interaction was produced by the Competitive-Failure condition differing from the mean of the other five cells. Subjects in the former condition felt their group worked less well together ($F=57.46, df=1,44, p<.001$) and they enjoyed the work less ($F=81.75$, $df=1,44, p<.001$) than subjects in the other conditions combined. The one main effect not qualified by an interaction was an effect for the Outcome factor in the "work well" question. The results indicated that winning subjects felt they worked better together than losing subjects ($F=35.87, df=1,44, p<.001$).

Thus, the attraction ratings on the second questionnaire consistently showed that the subjects in the Competitive-Failure condition were significantly less attracted to members of the outgroup than were subjects in any of the other five conditions. The outgroup attraction scores for the other five conditions, including the Competitive-Success condition, were very similar.

Leaders. There were no significant differences in the number of persons named as leaders in any of the conditions on either of the tasks.

Task Ratings. Subjects were asked to rate the second series of tasks as to how difficult they were, how much they enjoyed the tasks and how satisfied they were with their group's performance on the tasks. The results from these questions are presented in Table 3. As can be seen, there was a consistent main effect for the

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Insert Table 3 here

Outcome factor such that winners reported that they enjoyed working on the tasks significantly more, they were significantly more satisfied with their performance and the tasks were significantly less difficult than did subjects in the Failure conditions. The interactions that did reach significance were caused mainly by the fact that in the Failure condition, the Competitive group felt they enjoyed working on the two tasks less than subjects in the Cooperative or No Interaction conditions (First Task: $F=37.25, df=1,44, p<.001$; Second Task: $F=26.59, df=1,44, p<.001$) and were less satisfied with their performance on the two tasks (First Task: $F=25.01$. $df=1,44, p<.01$; Second Task: $F=6.48, df=1,44, p<.01$). There were no significant differences on these ratings for group in the Success conditions.

Difference Scores In order to asses the extent to which hostility was reduced by the cooperative effort on the superordinate goals, the subjects' attraction ratings on the first and second questionnaires were compared. A difference score was calculated by subtracting the rating on the second questionnaire from that on the first questionnaire. If simple working together is sufficient to reduce intergroup hostility then subjects in all groups should have rated the outgroup more highly on the second questionnaire. Table 4 shows the difference scores for the frequency of naming outgroup members to the categories "most want to be friends with" and "least want to be friends with". With regard to the naming of outgroup members as friends, the significant effects found on this question are mainly due to the Competitive conditions. There was a slight tendency for subjects in the Competitive-Failure condition to reduce the instances of naming outgroup members as friends (indicated by a positive score) and this was the only condition in which such a reduction was found. The Competitive-Failure condition did differ significantly from the mean of all the other conditions ($F=196.57, df=1,44, p<.001$). For the five conditions in which there was an increase in naming outgroup members as friends, the greatest increase occurred

Insert Table 4 Here

in the Competitive-Success condition (Competitive-Success vs. Cooperative and No Interaction conditions: $F=47.40, df=1,44, p<.001$). While the largest differences are found in the Competitive condition, an interesting result occurred in the Cooperative condition. Subjects in the Cooperative-Failure condition increased their naming of outgroup members as friends significantly more than did subjects in the Cooperative-Success condition ($F=11.60, df=1,44, p<.001$).

Turning to the instances of naming outgroup members as least desirable friends, again the significant interaction was largely a result of the deviant Competitive-Failure condition. Only in this condition was there not a reduction in nominating outgroup members to this category (Competitive-Failure vs. remaining five: $F=59.21$, $df=1,44, p<.001$). On the other hand, the Competitive-Success condition produced the greatest reduction in naming outgroup members as least desirable friends. While the reduction obtained in this condition was significantly greater than in the two cooperative conditions ($F=7.67, df=1,44, p<.01$), it was only slightly greater than the reduction in the No Interaction conditions ($F=2.22, df=1,44, p<.20$).

The differences in the ratings of the liking scores are presented in Table 5. There were no differences between the ratings of the ingroup on the two questionnaires.

Insert Table 5 here

However, there were striking effects on the ratings of the outgroup members. There was a highly significant main effect for the Outcome variable and an interaction. The means indicate that while subjects in all the conditions except the Competitive-Failure cell increased their attraction for the outgroup members after working with them, subjects in the Competitive-Failure condition decreased their attraction for the outgroup members. The means obtained in the Competitive-Failure condition were significantly different from the means obtained in the other five conditions ($F=179.13$, $df=1,44, p<.001$). Further, the greatest increase in liking occurred in the

Competitive-Success condition (Competitive-Success vs. Cooperative and No Interaction combined: $F = 65.81$, $df = 1,44$, $p < .001$).

In general, the change scores show that when the groups were combined to work toward a superordinate goal, there was an increase in the intergroup attraction in all conditions except when the two groups had originally been competing and their combined effort was unsuccessful. The greatest reduction in intergroup hostility occurred between two groups which had originally been competing and whose combined efforts were successful. There was also a tendency for subjects in the Cooperative-Failure groups to become more attracted to one another than in the Cooperative-Success groups.

Discussion

The results of the present study are relevant to understanding two facets of intergroup hostility: what factors arouse intergroup hostility and what factors reduce it. The results also speak to the question of how the type of group activity effects the intragroup process.

In the first phase of the present study, subjects were led to believe that their group was either competing, cooperating, or having no interaction with a second group. Looking at ratings of the outgroup, the results strongly supported the numerous other studies that have found that intergroup competition leads to intergroup hostility (Dion, 1973; Robbie and Wilkens, 1971; Sherif et al., 1961, Wilson and Miller, 1961). Subjects in the Competitive conditions of the present study reported significantly more negative and rejecting feelings about members of the outgroup than did subjects in the Cooperative or No Interaction conditions. Subjects in the Cooperative condition were most accepting of the outgroup. Whether it was the competition per se, as suggested by Sherif et al., (1961) and Sherif (1958), or the fact that the competition may have led to greater ingroup-outgroup differentiation, which in turn led to the intergroup hostility in the Competitive condition (Dion, 1973), cannot be determined from the present results. It is

clear, however, that simple competition is a sufficient condition to create intergroup hostility.

Turning from the ratings of the outgroup to those of the ingroup, two points can be made. First, there was a strong tendency for competition to produce greatest ingroup cohesiveness. Subjects in the Competitive conditions liked members of their own group more than did subjects in the Cooperative or No Interaction conditions. They also reported enjoying their group more than subjects in the No Interaction condition. Thus, while competition leads to greatest rejection of the outgroup, it also leads to greatest acceptance of ingroup members. In addition, competition leads to greatest centralization of leadership. Significantly fewer members were named as leaders in the Competitive conditions than in the Cooperative or No Interaction cells. This finding is consistent with previous work on leadership indicating that groups operating under threats or high stress tend to centralize their leadership more than groups that are not operating under stress (Korten, 1962). Competition with another group can be viewed as a condition of stress of threat as the competing group threatens the groups possibility of obtaining desired goals. Both the intergroup cohesiveness and leadership results support findings by Rabbie and Wilkens (1971).

While the results in the first phase of the present study were highly supportive of previous work on intergroup and intragroup relationships, the results obtained in the second phase were not entirely consistent. In Sherif and his colleague's classic works (Sherif, 1966; Sherif et al., 1961; Sherif and Sherif, 1966) on the lessening of intergroup hostility, the authors state that bringing groups together to work on a superordinate goal is a sufficient and necessary condition for lessening intergroup hostility. They show numerous experimental examples of cooperation between groups leading to decreased intergroup hostility. The authors further go on to suggest that much hostility between different racial groups, between labor and management, and between countries could be

eliminated if these groups were brought together to work for a common goal. The results of the present study suggest that this simple statement about the effects of superordinate goals may be too general.

The present study indicates that the effects of bringing groups together to work on a superordinate goal are highly dependent on the type of relationship that previously existed between the two groups and, even more importantly, on the outcome of the combined efforts. Intergroup hostility is not reduced when two groups that previously competed with one another fail in their combined efforts to attain a superordinate goal. In fact, given these conditions, there is actually a tendency for intergroup hostility to increase. We can only speculate why this should occur. According to Sherif (1958) an ingroup is endowed with "positive qualities which tend to be praiseworthy, self-justifying, and even self-glorifying." The outgroup in a competitive situation is seen in negative terms. When the two groups are brought together to work on a superordinate goal and they fail in this endeavor, some reason for the failure must be found. Since the groups are in the habit of seeing each other in a negative light, the outgroup is an easy scapegoat in explaining why the cooperative effort did not succeed. If, in fact, the outgroup is blamed for the frustrating failure, it can be predicted that there should be heightened hostility and aggression aimed at the outgroup (Dollard, Doob, Miller, Mowrer, and Sears, 1939).

While there was no reduction in intergroup hostility in the Competitive-Failure condition, the greatest reduction occurred in the Competitive-Success condition. There are two possible explanations for this effect. First, it could be due simply to the fact that there was greater room on the scale for subjects in this condition to move their ratings than in the Cooperative or No Interaction conditions where subjects did not express hostility on the first set of ratings. Or, the effect could be the result of a contrast effect in this condition. Subjects in the Competitive-Success condition begin the cooperative

phase with hostile feelings toward members of the outgroup. The pleasant experience of working and winning with the outgroup may have contrasted with the initial hostility to produce the greatest reduction of hostility. Both the scaling and the contrast effects may have been at work as there was a tendency on the absolute ratings on the second questionnaire for the Competitive-Success subjects to express greatest outgroup attraction.

While losing tended to heighten hostility for the outgroup in the Competitive condition, losing on the cooperative task resulted in a greater increase in attraction than did winning in the Cooperative conditions. It seems that with persons who are initially attracted to one another, a shared negative experience can bring them closer together. However, with persons who are initially hostile, a negative experience serves only to increase their hostility.

Interestingly enough, the composition of the combined group and the result of the effort expended on the superordinate goal did not significantly effect attraction for ingroup members. This was contrary to the expectation that winning would increase ingroup attraction while losing would significantly decrease it. It seems, on the other hand, that these variables have an effect mainly on the attraction for the outgroup members.

The results from the present study speak very directly to the reduction of intergroup hostility and to the wisdom of simply applying the superordinate goal hypothesis to reduce intergroup hostility. The statement that having groups work together on a superordinate goal reduces intergraoup hostility is valid, except where the groups have a history of hostility and they fail on the superordinate goal tasks. When this occurs there is a tendency for hostility to increase. Thus, applying the present results, if racial tension exists, caution must be exercised in picking the tasks on which the two racial groups will work. If the combined groups experience early failures, interracial tension is likely to increase rather than decrease. Interestingly enough, it may be that if hostile groups first succeed

together on superordinate goals to a point where hostility is reduced and then fail on later superordinate goals, hostility may be reduced more than the case where they continue to succeed on all tasks. Further research is needed to bear out this hypothesis.

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Footnotes

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Table 1

Means and Analysis from Combined Groups on Frequencies of Naming Outgroup Members Most Desired or Least Desired as Friends

Most Desired as Friends

	Type of Group		
Outcome	Cooperative	Competitive	No Interaction
Success	1.22[a] (n=8)[c]	1.25 (n=8)	1.28 (n=9)
Failure	1.44 (n=8)	.22 (n=9)	1.12 (n=8)

Least Desired as Friends

	Type of Group		
Outcome	Cooperative	Competitive	No Interaction
Success	1.97[b] (n=8)	2.02 (n=8)	1.91 (n=9)
Failure	1.32 (n=8)	2.80 (n=9)	1.96 n=8)

[a]Response to "List the three people in this room that you would want to be firends with the most." The scores represent the average number of times outgroup members were named by the group.

[b]Response to "List the three people in this room that you would least want to be friends with." The scores represent the average number of times outgroup members were named by the group.

[c]The number of groups in that condition.

	Most desired as Friends			Least desired as Friends		
Source	df	MS	F	df	MS	F
A (Type of Group)	2	1.73	86.82***	2	1.44	42.72***
B (Outcome)	1	1.45	72.53***	1	.69	20.49***
AB	2	1.72	86.17***	2	1.00	29.60***
Error	44	.02		44	.03	

***$p<.001$

Table 2

Mean and Analysis of Liking Scores from Combined Group

Ingroup

Type of Group

Outcome	Cooperative	Competitive	No Interaction
Success	6.50[a] (n=8)	5.79 (n=8)	6.25 (n=9)
Failure	6.92 (n=8)	5.90 (n=8)	6.58 (n=8)

Outgroup

Type of Group

Outcome	Cooperative	Competitive	No Interaction
Success	9.41[a] (n=8)	10.29 (n=8)	9.93 (n=9)
Failure	8.96 (n=8)	19.35 (n=9)	10.44 (n=8)

[a]Response to question "How much did you like the following people?" (1=Like very much, 31=Dislike very much).

	Ingroup			Outgroup		
Source	df	MS	F	df	MS	F
A (Type of Group)	2	3.25	6.56**	2	159.57	137.08***
B (Outcome)	1	1.02	2.06	1	120.29	103.34***
AB	2	.10	.20	2	114.48	98.35***
Error	44	.50		44	1.16	

**p<.01
***p<.001

Table 3

Means and Analysis on Ratings of Tasks by Combined Group

Task 1

Type of Group

Outcome	Cooperative	Competitive	No Interaction
Success	12.81[a]	9.93	11.31
	9.94[b]	11.55	10.59
	8.84[c]	8.47	7.56
Failure	10.82	11.27	9.56
	11.75	15.62	10.52
	14.95	19.60	13.76

Task 2

Type of Group

Outcome	Cooperative	Competitive	No Interaction
Success	15.97[d]	16.95	16.94
	10.20[e]	10.58	9.70
	7.28[f]	6.5	7.43
Failure	12.66	13.42	14.87
	12.87	15.61	11.47
	12.94	14.34	11.62

[a]Response to "How difficult did you think the first task in the series was?" (1 = Very difficult, 31 = Not at all difficult).

[b]Response to "How enjoyable did you find the first task in the series?" (1 = Very enjoyable, 31 = Very unenjoyable).

[c]Response to "How satisfied are you with the product of the first task in this series?" (1 = Very satisfied, 31 = Not at all satisfied).

[d]Response to "How difficult did you think the second task in the series was?" (1 = Very difficult, 31 = Not at all difficult).

[e]Response to "How enjoyable did you find the second task in the series?" (1 = Very enjoyable, 31 = Very unenjoyable).

[f]Response to "How satisfied are you with the product of the second task in this series?" (1 = Very satisfied, 31 = Not at all satisfied).

Source	df	T1-Diff F	T1-Enj F	T1-Sat F	T2-Diff F	T2-Enj F	T2-Sat F
A (Type of Group)	2	3.23**	15.30****	7.62***	1.51	10.77****	.99
B (Outcome)	1	2.77*	15.00****	118.28****	16.32****	48.00****	113.76****
AB	2	5.36***	5.82***	5.63***	.39	4.65**	3.61**
Error	44	(2.69(	(3.13)	(6.38)	(6.38)	(2.58)	(3.79)

*p < .10
**p < .05
***p < .01
****p < .001

Table 4

Means and Analysis of Change Scores for Naming
Outgroup Members Most Desired and Least Desired as Friends

Most desired as Friends

Outcome	Type of Group: Cooperative	Competitive	No Interaction
Success	-.40[a] (n=8)	-1.01 (n=8)	-.83 (n=9)
Failure	-.64 (n=8)	.04 (n=9)	-.63 (n=8)

Least desired as friends

Outcome	Type of Group: Cooperative	Competitive	No Interaction
Success	.39[a] (n=8)	.66 (n=8)	.56 (n=9)
Failure	.45 (n=8)	-.06 (n=9)	.52 (n=8)

[a]Mean number of outgroup members named on first questionnaire-
Mean number of outgroup members named on second questionnaire.

Source	Most desired as Friends: df	MS	F	Least desired as friends: df	MS	F
A (Type of Group)	2	.33	14.02**	2	.26	7.44*
B (Outcome)	1	1.51	64.02**	1	.70	19.72**
AB	2	1.77	75.07**	2	.75	21.30**
Error	44	.02		44	.04	

*p<.05
**p<.001

Table 5

Means and Analysis of Change Scores for Liking of Ingroup and Outgroup Members

	Ingroup		
	Type of Group		
Outcome	Cooperative	Competitive	No Interaction
Success	.35[a] (n=8)	.37 n=8)	.25 (n=9)
Failure	.06 (n=8)	.48 (n=9)	.13 (n=8)

	Outgroup		
	Type of Group		
Outcome	Cooperative	Competitive	No Interaction
Success	2.81[b] (n=8)	6.23 (n=8)	2.86 (n=9)
Failure	2.72 (n=8)	-2.46 (n=9)	1.66 (n=8)

[a]Mean rating on liking of ingroup members on first questionnaire minus Mean rating on liking of ingroup members on second questionnaire

[b]Mean rating on liking of outgroup members on first questionnaire minus Mean rating on liking of outgroup members on second questionnaire

	Ingroup			Outgroup		
Source	df	MS	F	df	MS	F
A (Type of Group)	2	.33	.79	2	4.43	3.27*
B (Outcome)	1	.14	.32	1	143.05	105.72**
AB	2	.16	.37	2	91.28	67.46**
Error	44	.43		44	1.35	

*p<.05
**p<.001